

## ABSTRACT OF THE DISCLOSURE

The present invention provides a method for the *in vitro* selection of signaling aptamers comprising the steps of synthesizing a DNA pool, the DNA having a random insert of nucleotides of a specific skewed mole ratio; amplifying the DNA pool; transcribing an RNA pool from the amplified DNA using a fluorescently labeled nucleotide; applying the fluorescently labeled RNA pool to an affinity column to remove the high-affinity fluorescent RNA molecules from the fluorescently labeled RNA pool; obtaining a cDNA pool from the high-affinity fluorescent RNA molecules; repeating the amplification and selection steps on the fluorescent RNA molecules and cloning the fluorescent RNA molecules to yield signaling aptamers. Signaling aptamers comprising DNA molecules are also selected for. Also provided is a signaling aptamer that transduces the conformational change upon binding a ligand to a change in fluorescence intensity of the signaling aptamer.